

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on February 2, 2010 is acknowledged. The submission is in compliance with the provisions of 37 C.F.R. § 1.97 and 37 CFR § 1.98 and, therefore, the references therein have been considered.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because, in Figures 1 and 2, the control device “28” should be schematically represented using only a single box with all four lines connecting thereto, rather than using two separate boxes. For the Applicants’ convenience, the Examiner has included annotated sketches of Figures 1 and 2 that depict the requisite changes to these drawings (see attached Appendices A and B). Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

EXAMINER’S AMENDMENT

3. An examiner’s amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner’s amendment was given in a telephone interview with Thomas J. Burger, Attorney for Applicants, on February 3, 2010.

4. The claims have been amended as follows:

In **claim 12**, line 4, the clause --that throttles the volume of hot air to the air conditioning unit (14), the flow control valve (16)-- has been inserted between parenthetical reference character “(16)” and the word “disposed”;

In **claim 13**, the following clause has been inserted between lines 3 and 4:

--throttling the volume of hot air to the air conditioning unit (14) using a flow control valve (16);-- ;

In **claim 13**, line 6, the word “a”, which immediately precedes the word “flow”, has been deleted and the word --the-- has been added in its place.

REASONS FOR ALLOWANCE

5. The following is an examiner’s statement of reasons for allowance:

The prior art references, neither alone nor in combination, disclose, teach or suggest a device for heating an aircraft cabin, or a method for heating an aircraft cabin, having the combination of elements recited in independent claims 12 and 13, respectively (as amended above).

Specifically, with respect to independent claims 12 and 13, the closest prior art is considered to be that of Williams et al. (US 6,189,324), Darges et al. (US 3,825,212), and Hayes et al. (US 4,149,389). While the combined teachings of Williams et al., Darges et al., and Hayes et al. may disclose some of the claimed limitations, claims 12 and 13 are clearly patentable over these references, whether considered individually or in combination, because these references fail to disclose, teach, or suggest at least the following claimed elements: (a) a flow control valve that *throttles the volume* of hot air to the air conditioning unit; (b) a third hot air supply line

branching off from the first hot air supply line *upstream* from the flow control valve and connecting to the second hot air supply line *upstream* of where the hot air supplied via the second hot air supply line mixes with cool air flowing out of the air conditioning unit; and (c) an *ambient air inlet flap* connected to one of the second or third hot air supply lines upstream of the aircraft cabin and adapted to feed cold ambient air for mixing with the hot air supplied via the third hot air supply line, when the air conditioning unit fails (emphasis added).

Moreover, one of ordinary skill in the art would have no reasonable motivation for modifying the Williams et al. base reference so as to overcome the deficiencies recited above. For example, as the Applicants convincing point out in their Remarks dated December 7, 2009, one of ordinary skill in the art would have no motivation at all to modify the Williams et al. air conditioning system by connecting the full bleed air line (56) upstream of the air mixer (120), rather than downstream of the air mixer (120) as disclosed therein. Refer to Williams et al., Figure 1; also refer to Applicants' Remarks dated December 7, 2009, pages 14-15. The Examiner completely agrees with the Applicants that the junction between the full bleed air line (56) must be located downstream of the check valve (136) in order to prevent hot air from the full bleed air line (56) from flowing backwards into the mixer (120) and into air cycle cooling circuit (60). See Williams et al., column 7, lines 23-28; also see Applicants' Remarks dated December 7, 2009, pages 14-15. Otherwise, hot air from the full bleed air line (56) could potentially ruin the components of the air cycle cooling circuit (60), thereby rendering it useless. In addition, one of ordinary in the art would have no reasonable motivation to connect an ambient air inlet flap to the full bleed air line (56) of the Williams et al. air conditioning system. Refer to Williams et al., Figure 1. As the Applicants correctly note in their Remarks, the primary

purpose served by the full bleed air line (56) is to maintain the pressurization of the aircraft cabin (12) upon the catastrophic failure of the environmental control unit (10). See Williams et al., column 3, lines 58-67; and column 4, lines 1-10. The Examiner also completely agrees with the Applicants that “if an ambient air inlet flap were added to the full bleed air line (56) of Williams et al., the full bleed air line (56) would necessarily be in fluid communication with the ambient air pressure, which would depressurize the full bleed air line (56) as well as the aircraft cabin (12)”. See Applicants’ Remarks dated December 7, 2009, pages 13-14. Therefore, the addition of an ambient air inlet flap to the full bleed air line (56) of Williams et al. would completely destroy the intended functionality of the system by rendering it unable to maintain the pressurization of the aircraft cabin (12). Consequently, it is clearly evident that any attempt to modify the air conditioning system of Williams et al. in an effort to arrive at the claimed invention would necessarily involve the application of impermissible hindsight reconstruction.

Therefore, because the closest prior art fails to disclose, teach, or suggest numerous limitations set forth in claims 12 and 13, and there is no reasonable motivation for one of ordinary skill in the art to modify the closest prior art references (Williams et al., Darges et al., and Hayes et al.) in such a way so as to cure these deficiencies, independent claims 12 and 13 of this application are clearly patentable over the prior art.

In regard to dependent claims 2-8, these claims are allowable as being dependent, either directly or indirectly, upon allowable independent claim 12.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick F. O'Reilly III whose telephone number is (571) 272-3424. The examiner can normally be reached on Monday through Friday, 8:30 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven B. McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick F. O'Reilly III/
Examiner, Art Unit 3749

/Steven B. McAllister/
Supervisory Patent Examiner, Art Unit 3749